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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/802,054      | 03/17/2004  | Krishnan Ramu        | L1081.04102         | 1717             |

7590 10/21/2004  
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EXAMINER

LE, DANG D

ART UNIT PAPER NUMBER

2834

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/802,054

**Applicant(s)**

RAMU ET AL.

**Examiner**

Dang D Le

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5, 13, 15, 16, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Pengov (6,051,903).

Regarding claim 1, Pengov shows a two-phase switched reluctance machine (TPSRM), comprising:

- A stator (20) having a plurality of poles (24) and a ferromagnetic or iron back material; and

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- A rotor (40) having a plurality of poles (44, 54, 64) and a ferromagnetic or iron back material, wherein:
- Current flowing through coils (32, A phase) wound around a first set of the plurality of stator poles (24a–24g) induces a flux flow through the first set of stator poles and portions of the stator back material during a first excitation phase (Figure 3),
- Current flowing through coils (32, B phase) wound around a second set of the plurality of stator poles (24l–24f) induces a flux flow through the second set of stator poles and portions of the stator back material during a second excitation phase, and
- The numbers of stator (12) and rotor (3, 6, 9, etc.) poles are selected such that substantially no flux reversal occurs in any part of the stator back material as a result of transitioning between the first and second excitation phases.

Regarding claims 2, 5, and 13, it is noted that Pengov also shows all of the limitations of the claimed invention.

Regarding claims 15, 16, and 20, the method of operating the motor would be inherent and obvious since the prior art references meet the structural limitations of the claimed device.

4. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Heese et al. (6,194,805).

Regarding claim 14, Heese et al. shows a two-phase switched reluctance machine (TPSRM), comprising:

- A stator (21) having a plurality of poles and a ferromagnetic or iron back material; and
- A rotor (311) having a plurality of poles and ferromagnetic or a iron back material, wherein:
- Current flowing through coils wound around a first set of the plurality of stator poles induces a flux flow through the first set of stator poles and portions of the stator back material during a first excitation phase,
- Current flowing through coils wound around a second set of the plurality of stator poles induces a flux flow through the second set of stator poles and portions of the stator back material during a second excitation phase, and
- The numbers of stator and rotor poles are selected such that a flux induced by each of the first and second excitation phases flows through a path encompassing about two-thirds of the circumference of each of the rotor and stator back materials (Figure 3).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3, 4, 8-12, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pengov.

Regarding claims 3 and 4, Pengov shows all of the limitations of the claimed invention except for 6 stator poles with 9 or 15 rotor poles, respectively.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a motor with 6 stator poles and 9 or 15 rotor poles, respectively, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 8-12 and 17-19, Pengov shows all of the limitations of the claimed invention except for twice the number of windings, twice the flux density, and the occurrence of only flux reversal.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a motor with twice the number of windings, twice the flux density, and the occurrence of only flux reversal, respectively, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pengov in view of Smith (5,146,127).

Regarding claim 6, Pengov shows all of the limitations of the claimed invention except for contoured rotor poles.

Smith shows contoured rotor poles for the purpose of controlling the alternating magnetic flux waveform.

Since Pengov and Smith are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use contoured rotor poles as taught by Smith for the purpose discussed above.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pengov in view of Byrne et al. (3,956,678).

Regarding claim 7, Pengov shows all of the limitations of the claimed invention except for slotted rotor poles.

Byrne et al. shows slotted rotor poles for the purpose of maximizing the magnetic flux saturation.

Since Pengov and Byrne et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use slotted rotor poles as taught by Byrne et al. for the purpose discussed above.

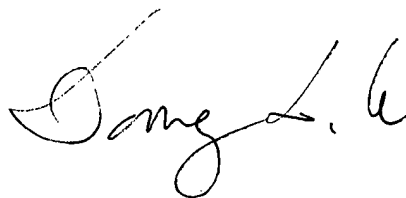
***Information on How to Contact USPTO***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (571) 272-2027. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10/15/04



**DANG LE  
PRIMARY EXAMINER**